

IN THE CLAIMS:

Please amend claims 1-11 and add claims 12-17 as follows:

1. (Currently Amended) ~~An integrated gas sensor, comprising having a semiconductor body on which there is arranged a gas-sensitive resistor semiconductor film in contacted with at least one contact by electrodes, at least one a field electrode being situated disposed under the gas-sensitive semiconductor resistor film, and isolated by an insulator layerfilm disposed in between the field electrode and the gas-sensitive semiconductor film, where characterized in that the insulator layerfilm has a thickness that is at least approximately less than or equal to approximately ten times the Debye length L_D of the gas-sensitive semiconductor film and corresponding to the this insulator layerfilm, where the Debye length L_D is given by:~~

$$L_D = \sqrt{\frac{\epsilon \epsilon_0 k T}{q^2 N}}$$

where T is the temperature, ϵ is the relative permittivity of the material of the gas-sensitive semiconductor film, ϵ_0 is the absolute permittivity, k is the Boltzmann constant, N is the charge-carrier concentration and q is the elementary charge.

2. (Currently Amended) ~~The Integrated gas sensor of according to Cclaim 1, where characterized in that the insulator layerfilm has a thickness that is at least approximately less than or equal to approximately three times the Debye length L_D of the gas-sensitive semiconductor film and corresponding to the this insulator layerfilm.~~

3. (Currently Amended) ~~The Integrated gas sensor of according to Cclaim 1, where characterized in that the insulator layerfilm has a thickness that is at least approximately less than~~

or equal to approximately the Debye length L_D of the gas-sensitive semiconductor film and corresponding to ~~the~~this insulator ~~layer~~film.

4. (Currently Amended) ~~The~~ integrated gas sensor ~~of according to C~~claim 1, where ~~characterized in that~~ the field electrode comprises a plurality of microstructured field electrodes ~~is provided as field electrode~~.

5. (Currently Amended) ~~The~~ integrated gas sensor ~~of according to C~~claim 42, where ~~characterized in that~~ each one of the microstructured field electrodes is individually drivable.

6. (Currently Amended) ~~The~~ integrated gas sensor ~~of according to C~~claim 1, ~~characterized in that~~ further comprising at least one or more heater electrodes, the heater electrode being are integrated with the gas sensor ~~into the semiconductor body~~.

7. (Currently Amended) ~~The~~ integrated gas sensor ~~of according to C~~claim 1, ~~characterized in that~~ further comprising driver electronics, for the gas sensor are the driver electronics being monolithically integrated with ~~into the gas sensor~~ ~~semiconductor body~~.

8. (Currently Amended) ~~The~~ integrated gas sensor ~~of according to C~~claim 75, where ~~characterized in that~~ the driver electronics comprise ~~is provided for~~ a temperature control.

9. (Currently Amended) ~~The integrated gas sensor of according to Claim 1, where characterized in that~~ the thickness of the gas-sensitive semiconductor film is at most approximately one-hundred times greater than ~~the~~ Debye length of ~~the~~ this gas-sensitive film.

10. (Currently Amended) ~~The integrated gas sensor of according to Claim 42, where characterized in that~~ the spacing between the plurality of the microstructured electrodes is on to ~~be made of~~ the order of ~~the~~ grain size of the gas-sensitive semiconductor film.

11. (Currently Amended) ~~The integrated gas sensor of according to Claim 1, where characterized in that the gas-sensitive semiconductor insulator film comprises SnO₂ has a high breakdown field strength (Si₃N₄, Al₂O₃, SiO₂) and at least to a great extent does not screen electric fields.~~

12. (New) A gas sensor, comprising:

a gas-sensitive semiconductor film;

at least one contact electrode in electrical contact with the gas-sensitive film;

an insulator layer disposed next to the gas-sensitive semiconductor film; and

at least one field electrode disposed next to the insulator layer;

where the insulator layer has a thickness that is less than about ten times a Debye length

L_D of the gas-sensitive semiconductor film.

13. (New) The gas sensor of claim 12, further comprising a semiconductor substrate disposed next to the at least one field electrode.

14. (New) The gas sensor of claim 12, where the insulator layer has a thickness that is less than about three times the Debye length L_D of the gas-sensitive semiconductor film.

15. (New) The gas sensor of claim 12, where the insulator layer has a thickness that is less than the Debye length L_D of the gas-sensitive semiconductor film.

16. (New) The gas sensor of claim 12, where the insulator layer has a thickness that is approximately equal to the Debye length L_D of the gas-sensitive semiconductor film.

17. (New) The gas sensor of claim 12, where the at least one field electrode comprises a plurality of field electrodes.